Chat Bot through RASA

1. Introduction :

A chatbot is an artificial intelligence (AI) software that can simulate a conversation (or a chat) with a user in natural language through messaging applications, websites, mobile apps or through the telephone.

1.1 Importance of ChatBot:

Chatbot is often described as one of the most advanced and promising expressions of interaction between humans and machines. However, from a technological point of view, a chatbot only represents the natural evolution of a Question Answering system leveraging Natural Language Processing (NLP).

1.2 Applications of ChatBot:

- Pizza Order.
- Product Suggestion
- Weather Report
- News and etc.,

2. Prerequisites:

- Python – Version : 3.6
- RASA NLU – Version : Rasa 1.9.6

3. Introduction to RASA:

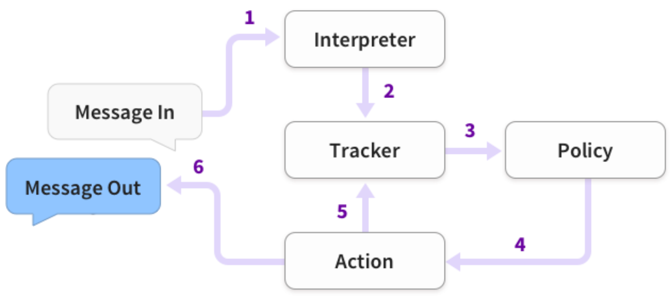
3.1 About Rasa:

Rasa Open Source is a conversational AI framework for building contextual assistants. Rasa is an open source machine learning framework for automated text and voice-based conversations. Understand messages, hold conversations, and connect to messaging channels and APIs.

Rasa Open Source includes

- NLU: determines what the user wants and captures key contextual information.
- Core: selects the next best response or action based on conversation history.
- Channels and integrations: connect assistant to users and backend systems.

3.2 Architecture of Rasa:



4. **Problem Statement:**

4.1 About:

The aim is to build a chat bot which answers the user queries about the number of corona virus cases within Indian states and all countries across the globe with its geographic location, about the corona virus, the symptoms and the preventive measure.

5. **Solution – Approach:**

5.1 Technical Stack:

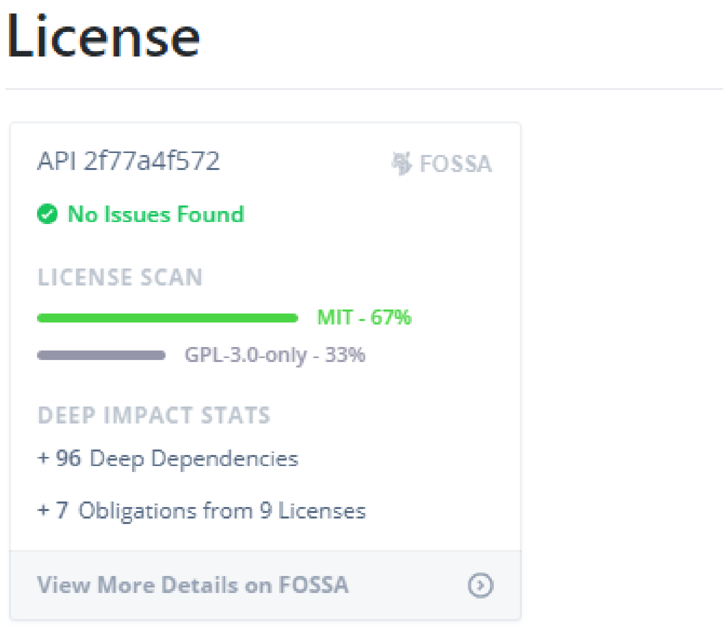
- Python – version 3.6
- Rasa - version 1.9.6
- mongoDB – version – 4.2.3

5.2 Libraries & Packages:

- Flask
- Pandas
- Requests
- Geopy

5.3 Third Party API's and License:

- API's used : https://corona.lmao.ninja/docs/
- Github : https://github.com/NovelCOVID/API



License

API 2f77a4f572

FOSSA

✓ No Issues Found

LICENSE SCAN

MIT - 67%

GPL-3.0-only - 33%

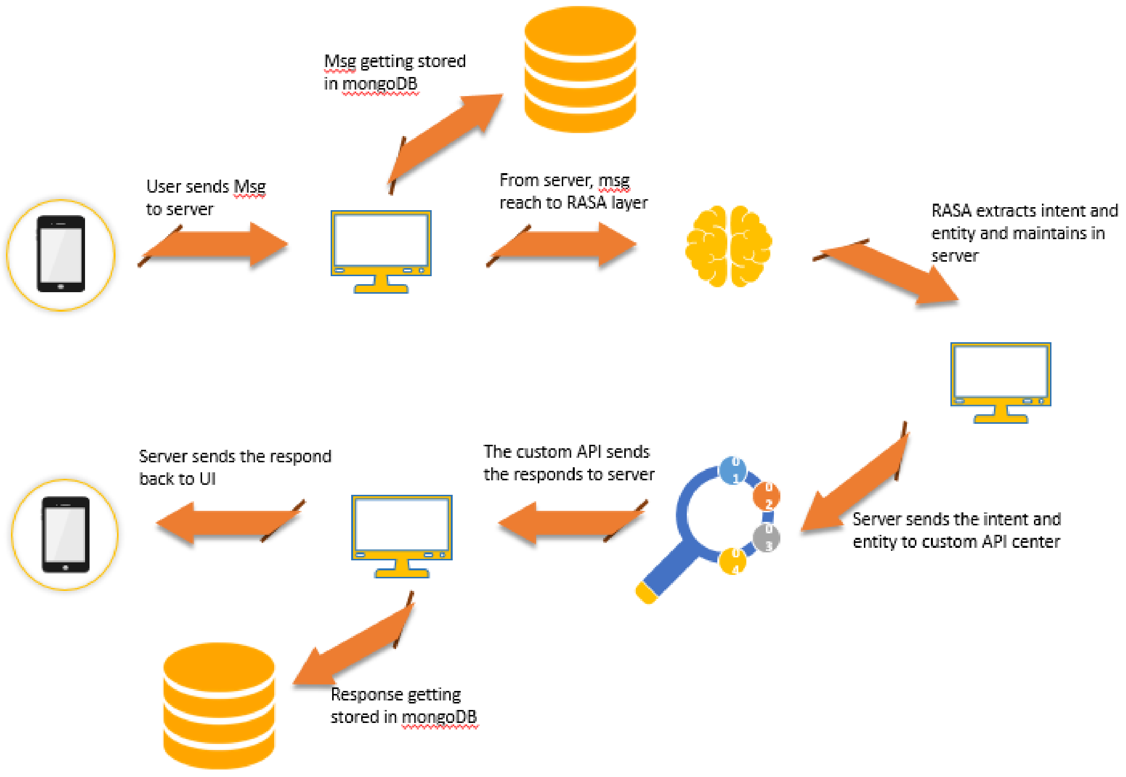
DEEP IMPACT STATS

+ 96 Deep Dependencies

+ 7 Obligations from 9 Licenses

View More Details on FOSSA

5.4 Solution Architecture:



Msg getting stored in mongoDB
User sends Msg to server
From server, msg reach to RASA layer
RASA extracts intent and entity and maintains in server
Server sends the respond back to UI
The custom API sends the responds to server
Server sends the intent and entity to custom API center
Response getting stored in mongoDB

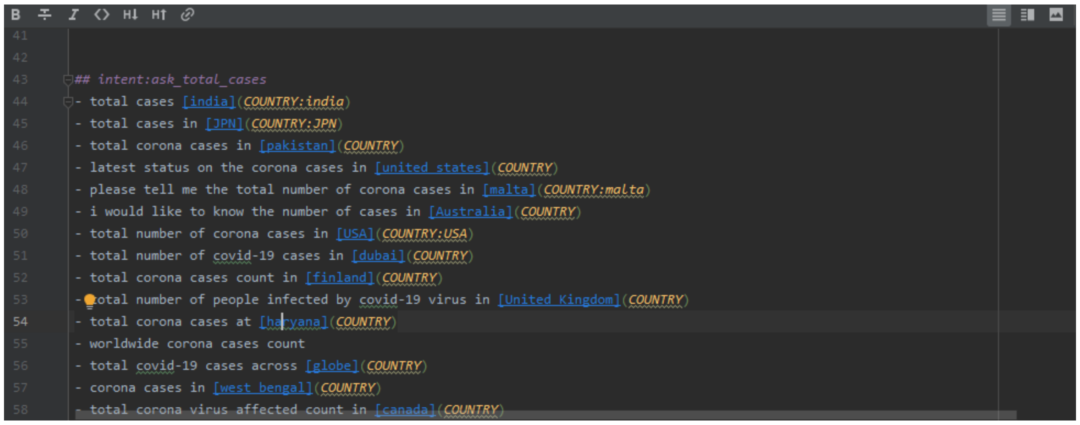
6. Implementation :

6.1 Library installation :

- Create a conda environment using “conda create –n <env_name>”
- Activate the conda environment.
- Install the RASA using “pip install rasa “ , “pip install rasa-x -i https://pypi.rasa.com/simple”
- Install spacy using pip install -U spacy
  - python -m spacy download en
  - python -m spacy download en_core_web_md
  - python -m spacy link en_core_web_md en

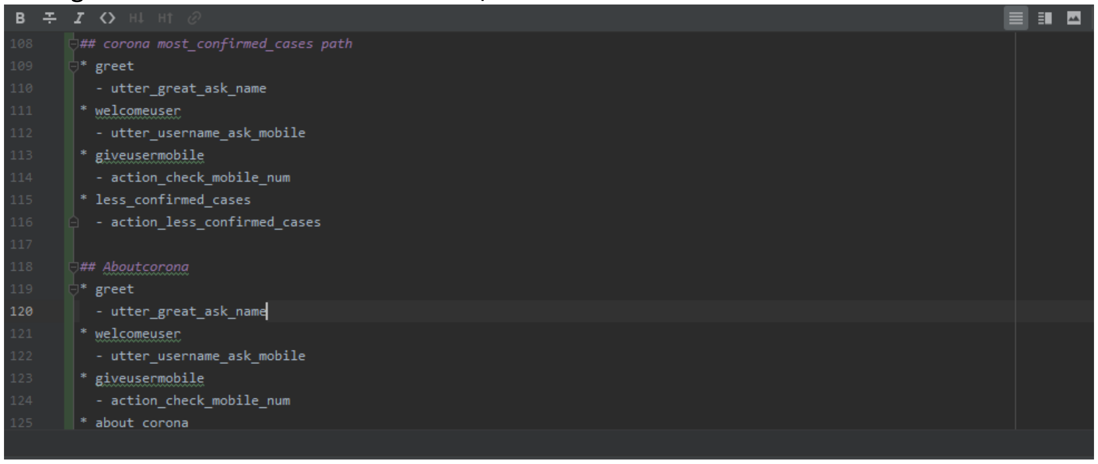
6.2 Project Setup:

- Create a project “covid_RASA”, using pycharm
- Open the command line and execute the command “rasa init” to get the default files.
- From **data/nlu.md** create all your required intent and the training data.



```
## intent:ask_total_cases
- total cases [india](COUNTRY:india)
- total cases in [JPN](COUNTRY:JPN)
- total corona cases in [pakistan](COUNTRY)
- latest status on the corona cases in [united states](COUNTRY)
- please tell me the total number of corona cases in [malta](COUNTRY:malta)
- i would like to know the number of cases in [Australia](COUNTRY)
- total number of corona cases in [USA](COUNTRY:USA)
- total number of covid-19 cases in [dubai](COUNTRY)
- total corona cases count in [finland](COUNTRY)
- total number of people infected by covid-19 virus in [United Kingdom](COUNTRY)
- total corona cases at [haryana](COUNTRY)
- worldwide corona cases count
- total covid-19 cases across [globe](COUNTRY)
- corona cases in [west bengal](COUNTRY)
- total corona virus affected count in [canada](COUNTRY)
```

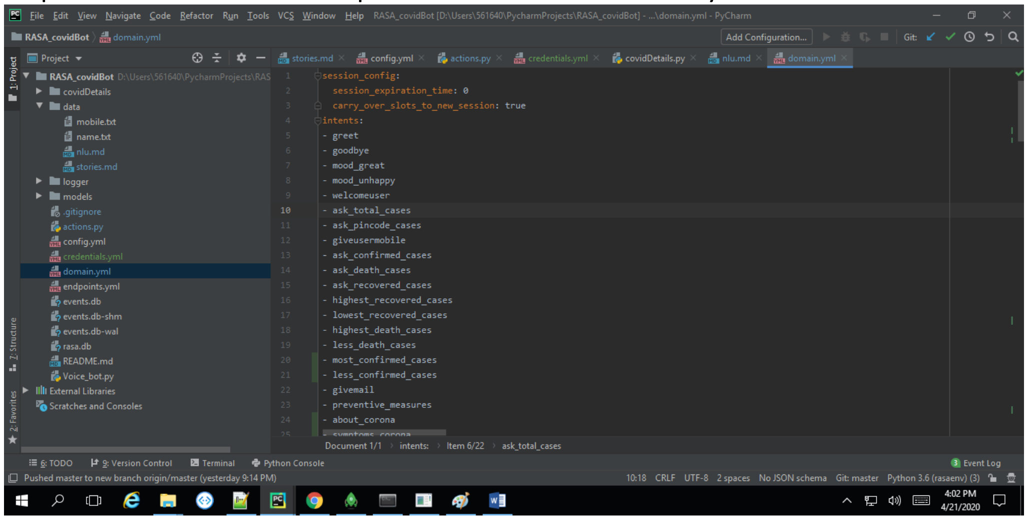
- From **data/stories.md** create a particular story/conversation that the bot should track through with intents and the utterances/actions.



```
## corona most_confirmed_cases path
* greet
  - utter_great_ask_name
* welcomeuser
  - utter_username_ask_mobile
* giveusermobile
  - action_check_mobile_num
* less_confirmed_cases
  - action_less_confirmed_cases

## Aboutcorona
* greet
  - utter_great_ask_name
* welcomeuser
  - utter_username_ask_mobile
* giveusermobile
  - action_check_mobile_num
* about corona
```

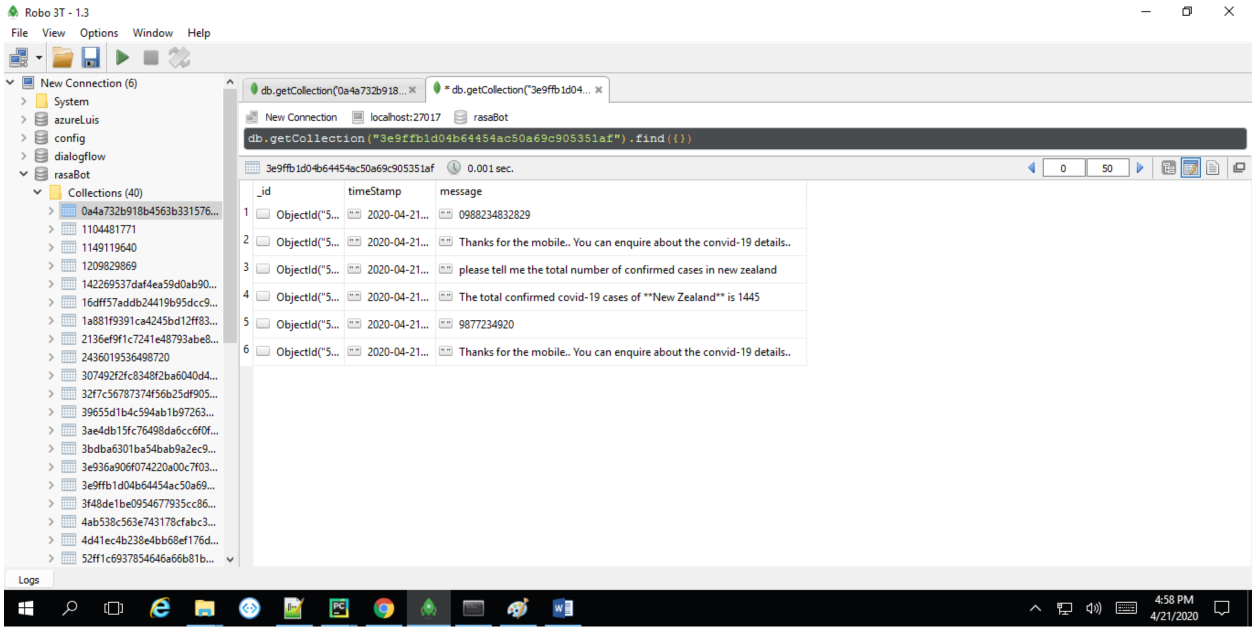
- Under **domain.yml** map your intents and the required actions/utterances i.e., the responses that bot should response back based on the story.



```
session_config:
  session_expiration_time: 0
  carry_over_slots_to_new_session: true
intents:
- greet
- goodbye
- mood_great
- mood_unhappy
- welcomeuser
- ask_total_cases
- ask_pincode_cases
- giveusermobile
- ask_confirmed_cases
- ask_death_cases
- ask_recovered_cases
- highest_recovered_cases
- lowest_recovered_cases
- highest_death_cases
- less_death_cases
- most_confirmed_cases
- less_confirmed_cases
- givemail
- preventive_measures
- about_corona
- symptoms_corona
```

- Once the above steps are done, from the command line/terminal run "rasa train" and the after successful completion it will generate the model under "models" folder.
- Start rasa using the command "rasa shell" for command line mode , in case if you need a UI version run the command "rasa x"
- Start the actions using rasa run actions.

- The Transactions are stored into the mongodb using the actions, with sessionID as the collection name.



```
New Connection (6)
  System
  azureLuis
  config
  dialogflow
  rasaBot
    Collections (40)
      0a4a732b918b4563b331576...
      1104481771
      1149119640
      1209829869
      142269537daf4ea59d0ab90...
      16dff57addb24419b95dcc9...
      1a881f9391ca4245bd12ff83...
      2136ef9f1c7241e48793abe8...
      2436019536498720
      307492f2fc8348f2ba6040d4...
      32f7c56787374f56b25df905...
      39655d1b4c594ab1b97263...
      3ae4db15fc76498da6cc6f0f...
      3bdba6301ba54bab9a2ec9...
      3e936a906f074220a00c7f03...
      3e9ffb1d04b64454ac50a69...
      3f48de1be0954677935cc86...
      4ab538c563e743178cfabc3...
      4d41ec4b238e4bb68ef176d...
      52ff1c6937854646a66b81b...
```

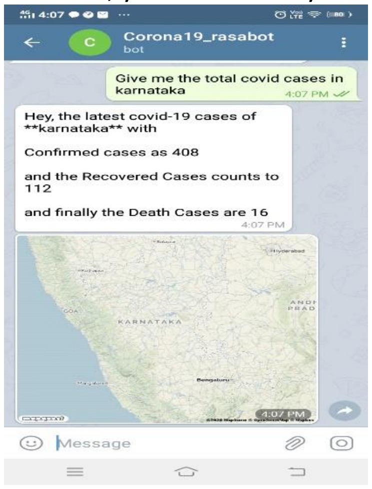
```
db.getCollection("3e9ffb1d04b64454ac50a69c905351af").find({})
```

3e9ffb1d04b64454ac50a69c905351af 0.001 sec.

	_id	timeStamp	message
1	ObjectId("5...	2020-04-21...	0988234832829
2	ObjectId("5...	2020-04-21...	Thanks for the mobile.. You can enquire about the convid-19 details..
3	ObjectId("5...	2020-04-21...	please tell me the total number of confirmed cases in new zealand
4	ObjectId("5...	2020-04-21...	The total confirmed covid-19 cases of **New Zealand** is 1445
5	ObjectId("5...	2020-04-21...	9877234920
6	ObjectId("5...	2020-04-21...	Thanks for the mobile.. You can enquire about the convid-19 details..

6.3 Telegram Integration:

- For Telegram integration, we need to expose our end url to intent, so download ngrok and run the command ngrok http <port> (default is 5005)
- Start a conversation with botfather and enter /newbot to create a newbot
- Give a name to your bot
- Give a username to your bot, which must end in _bot.This generates an access token.
- Open credentials.yml and enter the below informations
- Start the rasa using the command rasa run
- Now, you can search you bot with both name in telegram and start chatting.



Corona19_rasabot
bot

Give me the total covid cases in karnataka
4:07 PM

Hey, the latest covid-19 cases of **karnataka** with

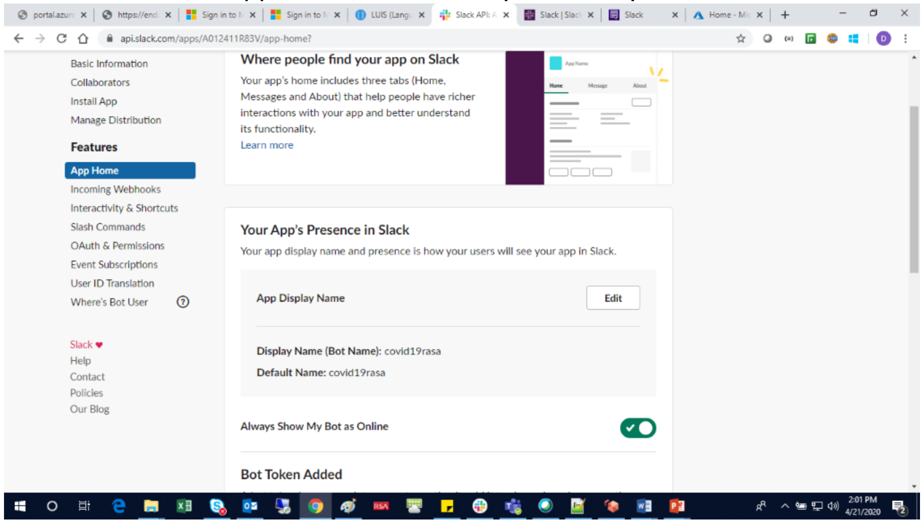
Confirmed cases as 408

and the Recovered Cases counts to 112

and finally the Death Cases are 16
4:07 PM

6.4 Slack Integration:

- For Slack integration, we need to create a slack app first (https.//api.slack.com/apps)
- Give the slack name and the development workspace of the slack app.
- Under Features - >App Home, select Always Show my Bot as Online



Where people find your app on Slack

Your app's home includes three tabs (Home, Messages and About) that help people have richer interactions with your app and better understand its functionality.
Learn more

Your App's Presence in Slack

Your app display name and presence is how your users will see your app in Slack.

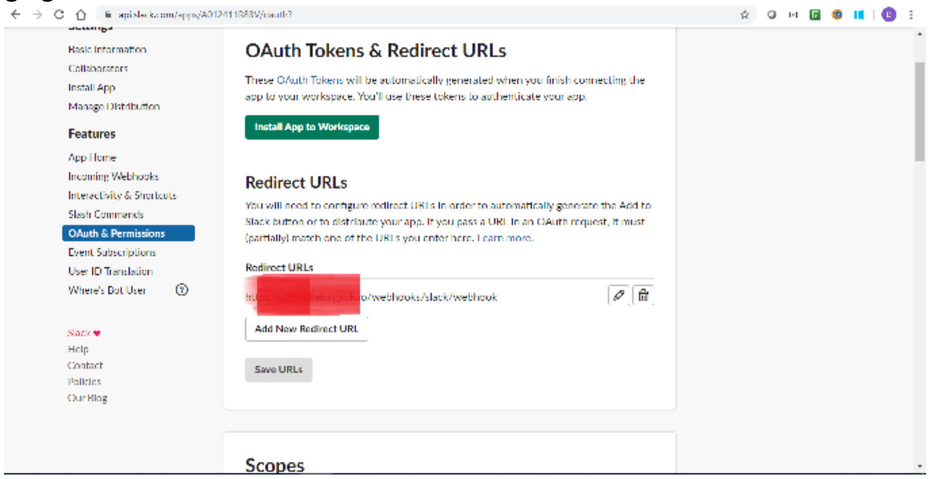
App Display Name

Display Name (Bot Name): covid19rasa
Default Name: covid19rasa

Always Show My Bot as Online ✓

Bot Token Added

- Under Features -> OAuth & Permissions, add your redirect url you generated using ngrok.



OAuth Tokens & Redirect URLs

These OAuth Tokens will be automatically generated when you finish connecting the app to your workspace. You'll use these tokens to authenticate your app.

Redirect URLs

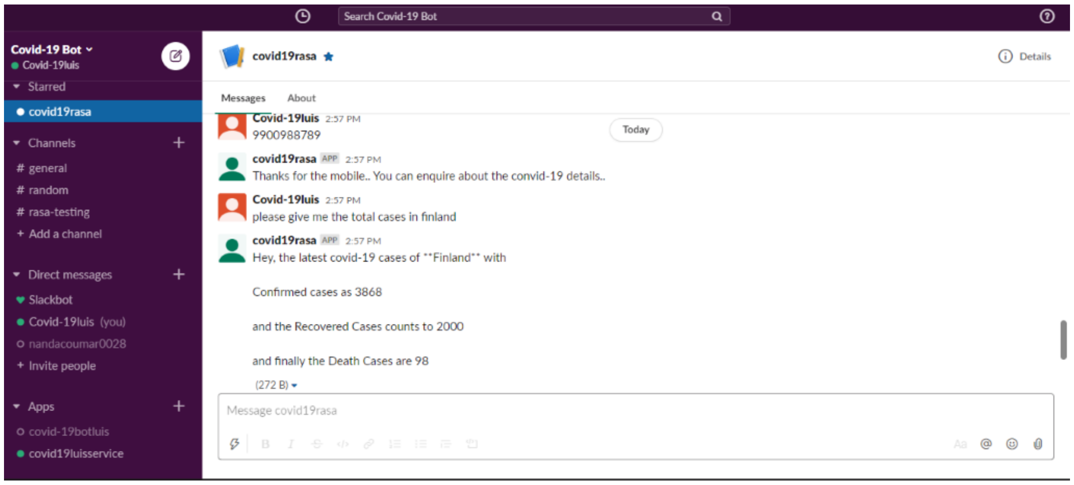
You will need to configure redirect URLs in order to automatically generate the Add to Slack button or to distribute your app. If you pass a URL in an OAuth request, it must (partially) match one of the URLs you enter here. Learn more.

Redirect URLs

ht[redacted]o/webhooks/slack/webhook

Scopes

- Under Features -> OAuth & Permission, create the scopes for your bot as “app_mentions:read”, “channels:join”, “chat:write”.
- Under Features -> Events Subscriptions add your Request URL as the ngrok url as, for Eg., https://<ngrok>/webhooks/slack/webhook.
- Under Features -> Events Subscriptions under scopes add the scopes of your bot such as “app:mention”, “channel_created”,”message:im”,”message:mpim”
- Under Features -> OAuth & Permission, generate the OAuth token by clicking install app to work and you will be having the toke generated and starts as “xox.
- Paste the generated token in crendetials.yml as below.
- Launch your app in the workspace and you can chat with the bot.



Covid-19luis 2:57 PM
9900988789

covid19rasa APP 2:57 PM
Thanks for the mobile.. You can enquire about the convid-19 details..

Covid-19luis 2:57 PM
please give me the total cases in finland

covid19rasa APP 2:57 PM
Hey, the latest covid-19 cases of **Finland** with

Confirmed cases as 3868

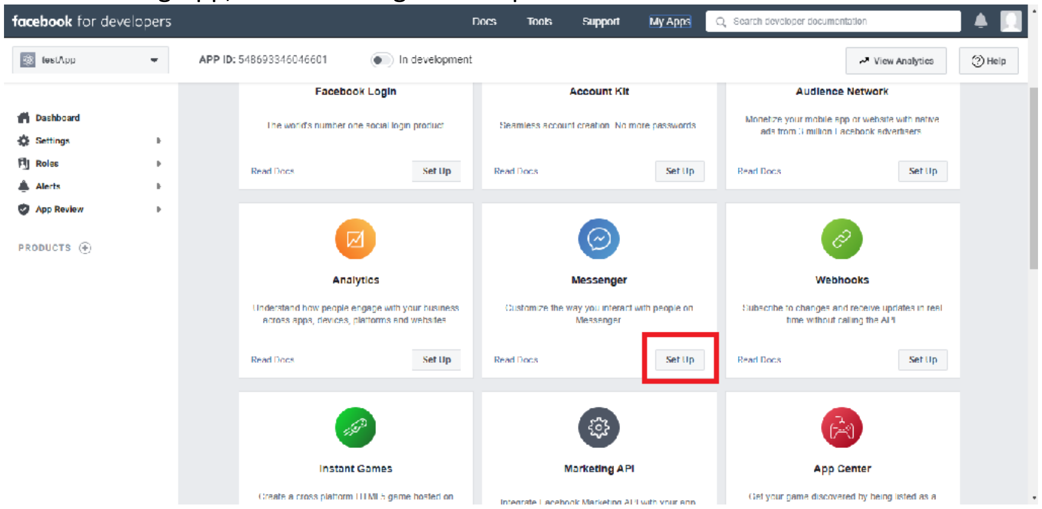
and the Recovered Cases counts to 2000

and finally the Death Cases are 98

(272 B)

6.5 Facebook Integration:

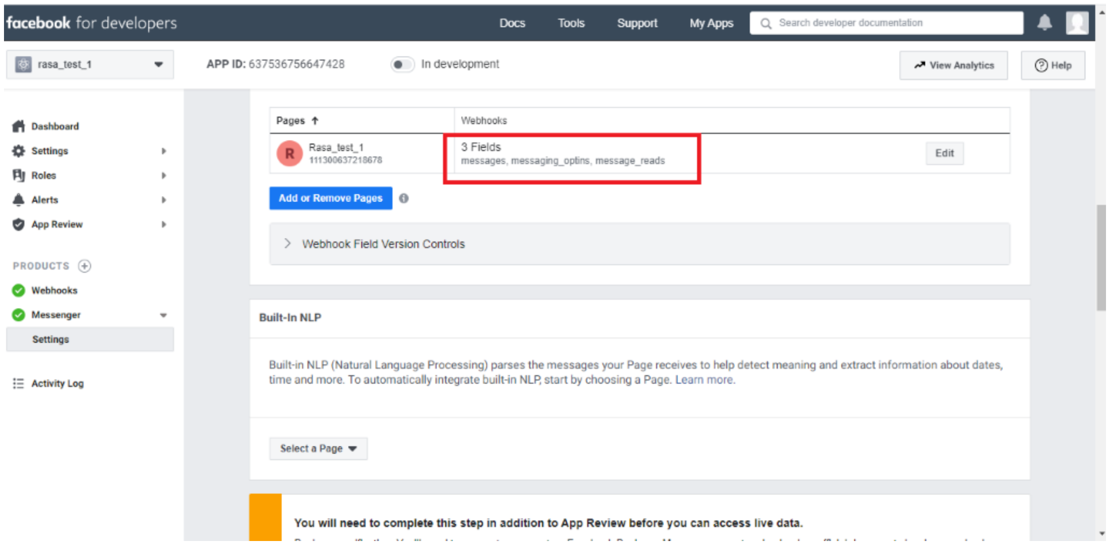
- Login to the FB application and create a page**.**
- Login to the FB for developers, and under MyApps Click “Create APP”
- After Creating App, select Message -> Setup.


facebook for developers
Docs
Tools
Support
My Apps
Search developer documentation
testApp
APP ID: 548693346046601
In development
View Analytics
Help
Dashboard
Settings
Roles
Alerts
App Review
PRODUCTS
Facebook Login
The world's number one social login product
Account Kit
Seamless account creation. No more passwords
Audience Network
Monetize your mobile app or website with native ads from 3 million Facebook advertisers
Analytics
Understand how people engage with your business across apps, devices, platforms and websites
Messenger
Customize the way you interact with people on Messenger
Webhooks
Subscribe to changes and receive updates in real time without calling the API
Instant Games
Create a cross platform HTML5 game hosted on
Marketing API
Integrate Facebook Marketing API with your app
App Center
Get your game discovered by being listed as a
Read Docs
Set Up

- Under Access Tokens, Add you app and generate the token.
- In credentials.yml file add below,

```
facebook:
        verify : <any name>
        secret:
        page-access-token <Paste the token generated in the previous step>
```

- Under Webhooks, edit and add the webhook url as <ngrok generated url /webhooks/facebook/webhook>
- Under Webhook -> Events select events as “messages”,”messaging_optins”,”message_read”



APP ID: 637536756647428 In development

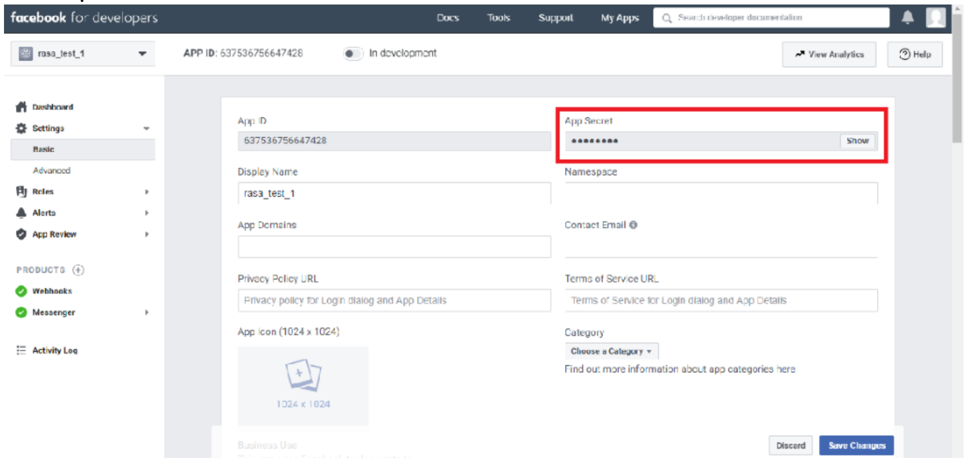
Pages	Webhooks
Rasa_test_1 111300637218678	3 Fields messages, messaging_optins, message_reads

Built-In NLP

Built-in NLP (Natural Language Processing) parses the messages your Page receives to help detect meaning and extract information about dates, time and more. To automatically integrate built-in NLP, start by choosing a Page. Learn more.

You will need to complete this step in addition to App Review before you can access live data.

- Add the verify token as the verify token in credentials.yml.
- To fill the value of secret in credentials.yml, goto Settings -> Basic -> copy the app secret value and paste it.



APP ID: 637536756647428 In development

App ID: 637536756647428

App Secret: ••••••••

Display Name: rasa_test_1

Namespace

App Domains

Contact Email

Privacy Policy URL: Privacy policy for Login dialog and App Details

Terms of Service URL: Terms of Service for Login dialog and App Details

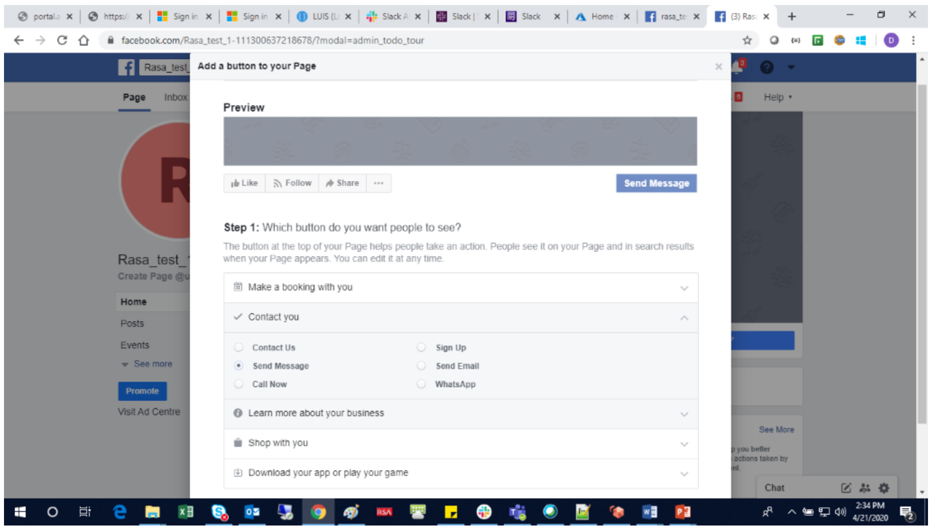
App Icon (1024 x 1024)

Category

Find out more information about app categories here

Business Use

- Goto facebook.com and go the page create and click “Add Button”.
- Under “contact you” select “send message” .


Add a button to your Page

Preview

Step 1: Which button do you want people to see?

The button at the top of your Page helps people take an action. People see it on your Page and in search results when your Page appears. You can edit it at any time.

Make a booking with you

✓ Contact you

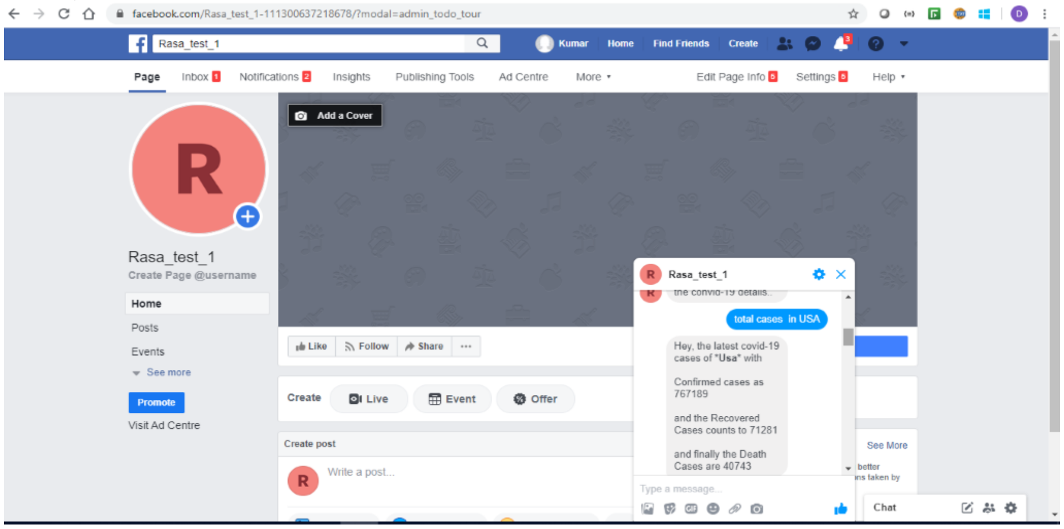
- Contact Us
- [✓ Send Message]
- Call Now
- Sign Up
- Send Email
- WhatsApp

Learn more about your business

Shop with you

Download your app or play your game

- After creating button, hover mouse towards the “send message” and click “test button” and start your conversation.


Rasa_test_1

the convid-19 details..

total cases in USA

Hey, the latest covid-19 cases of *Usa* with

Confirmed cases as 767189

and the Recovered Cases counts to 71281

and finally the Death Cases are 40743